# Key Equations

*Equation* 12.1 (page 477)

Boyle's law (where  is the pressure and  is the volume)



*Equation* 12.2 (page 478)

Charles’s law (where  is the Kelvin temperature)



*Equation* 12.3 (page 479)

General gas law (combined gas law) for a fixed amount of gas



*Equation* 12.4 (page 481)

Ideal gas law (where  is the amount of gas (moles) and  is the universal gas constant, 



*Equation* 12.5 (page 483)

Density of gases (where  is the gas density)



*Equation* (page 488)

Dalton’s law of partial pressures. The total pressure of a gas mixture is the sum of the partial pressures of the component gases  .



*Equation* 12.7 (page 488)

The total pressure of a gas mixture is equal to the total number of moles of gases multiplied by  .



*Equation* 12.8 (page 489)

The partial pressure of a gas (A) in a mixture is the product of its mole fraction  and the total pressure of the mixture.



*Equation* 12.9 (page 492)

Maxwell’s equation, which relates the rms speed  to the molar mass of a gas (*M*) and its temperature (*T*)



*Equation* 12.10 (page 492)

Graham’s law. The rate of effusion of a gas—the quantity of material moving from one place to another in a given amount of time—is inversely proportional to the square root of its molar mass.

